

REMARKS

The above amendments and these remarks are responsive to the Office action dated March 16, 2004. Prior to entry of the above amendments, claims 1-43 were pending and stand rejected. With this response, Applicant has amended claims 1 and 35 and presented new claims 44-47. In view of the preceding amendments and the following remarks, Applicant respectfully requests reconsideration of the application and allowance of the pending claims.

Rejections under 35 § U.S.C. § 102(b)

The Office action rejected claims 1-2, 5-26, 35, and 43 as being anticipated by Meltser et al. (US 5,763,113) (hereinafter, Meltser). The Office action further rejected claims 1-2, 5-31, 35-39, and 43 in view of Perry et al. (US 5,316,869) (hereinafter, Perry). In light of the amendments to claims 1 and 35, Applicant respectfully traverses the rejections.

Rejections Based on Meltser

Applicant submits that Meltser fails to disclose, teach, or suggest each and every element recited in the amended claims. Specifically, Meltser fails to disclose at least “a purge assembly ... adapted to selectively purge the anode chamber of [a] fuel cell ... with a stream containing at least a portion of the flow containing hydrogen gas from the source,” as recited in amended claim 1. Additionally, Meltser fails to disclose at least “a purge assembly adapted to selectively purge a selected composition from the anode chamber with a flow containing at least a portion of the stream containing hydrogen gas from the source” as recited in amended claim 35.

Meltser is directed toward a fuel cell monitoring system for monitoring the

presence and flow of hydrogen gas among the various components of the system. Additionally, Meltser discloses that the features of its monitoring system can monitor the performance of the entire stack or of individual cells and that this monitoring can be used to indicate the presence of other problems in the fuel cell system, such as carbon monoxide poisoning of the anode and water flooding of the cathode. Meltser discloses that, in these circumstances, cell performance may be improved through purging either the anode or the cathode of the cell.

Specifically, in the case of carbon monoxide poisoning, Meltser discloses a purge subroutine “which cuts off hydrogen flow when the stack is idle, and flows air/O₂ into the anode flow channel to remove the carbon monoxide from the anode. Thereafter, the process is reversed and the stack put back on stream.” Col. 8, lines 32-36. The structure of Meltser’s system requires that the fuel cell stack be idle to complete the purge routine and requires that the hydrogen stream to the fuel cell stack be cut off prior to purging the anode. There is no power being produced by the stack during the purge operation and the steady state operation of the stack is interrupted to complete the purge.

With respect to amended claim 1, Applicant respectfully submits that Meltser fails to disclose, teach, or suggest “a purge assembly ... adapted to selectively purge the anode chamber ... with a stream containing at least a portion of the flow containing hydrogen gas from the source.” As discussed above, the only disclosure in Meltser of an anode purge routine requires that the flow of hydrogen gas to the anode be cut off. In contrast, claim 1 recites that the flow of hydrogen gas to the anode continues during the purge process. The purge assembly recited in amended claim 1 allows the fuel cell

and fuel cell stack to continue producing electricity while the anode chamber is being purged. Such a purge assembly improves the stability and efficiency of the fuel cell system. Applicant respectfully requests that the rejection of claim 1 based on Meltser be reconsidered and withdrawn. Applicant further requests withdrawal of the rejections of claims 2 and 5-26, which depend from amended claim 1.

With respect to amended claim 35, Applicant respectfully submits that Meltser fails to disclose, teach, or suggest “a purge assembly adapted to selectively purge ... the anode chamber with a flow containing at least a portion of the stream containing hydrogen gas from the source.” As discussed above in relation to amended claim 1, Meltser specifically requires the hydrogen gas flow to be cut off prior to initiating the anode chamber purge. Accordingly, Applicant submits that Meltser’s purge assembly fails to disclose the purge assembly recited in amended claim 35, which uses a flow containing hydrogen gas from the source to purge the anode chamber. Applicant requests reconsideration and withdrawal of the rejection based on Meltser of amended claim 35. Applicant also requests withdrawal of the rejection of claim 43, which depends from claim 35 and incorporates the elements recited therein.

Rejections Based on Perry

Applicant respectfully submits that Perry fails to disclose, teach, or suggest each and every element recited in the amended claims. Specifically, Perry also fails to disclose or suggest at least “a purge assembly ... adapted to selectively purge the anode chamber of [a] fuel cell ... with a stream containing at least a portion of the flow containing hydrogen gas from the source,” as recited in amended claim 1. Additionally, Perry fails to disclose or suggest “a purge assembly adapted to selectively purge a

selected composition from the anode chamber with a flow containing at least a portion of the stream containing hydrogen gas from the source,” as recited in amended claim 35.

Perry is directed towards a self-contained energy device that produces energy from a fuel cell stack within the energy device. The energy device of Perry encloses a fuel cell stack, two water reservoirs, and several pumps, sensors and valves within a fluid- and pressure-tight chamber. Perry discloses a closed loop system wherein the hydrogen and oxygen streams exiting the fuel cell stack are recycled through a hydrogen-water reservoir and an oxygen-water reservoir, respectively, before returning to the fuel cell stack input. Perry also discloses a supply of hydrogen gas and a supply of oxygen gas external to the energy device that provide make-up hydrogen and make-up oxygen to the energy device through make-up supply lines 14, 16. See Perry, col. 4, lines 18-44.

Perry also discloses a control system capable of automatic operation in the event of dangerous conditions within the energy device. Specifically, Perry discloses that the control system “provides for automatic operation of the system so as to shut down the system [in] dangerous conditions.” See Perry, col. 7, lines, 43-46. Perhaps more importantly, Perry clearly requires that the controller disconnects the electrical load and closes the valves to the oxygen and hydrogen supply lines to the fuel cell stack prior to purging the stack. See Perry, col. 7, lines 49-62.

With respect to amended claim 1, Applicant respectfully submits that the energy device of Perry fails to disclose or suggest a purge assembly adapted to selectively purge the anode chamber with a stream containing at least a portion of the flow of

hydrogen gas from the source. As discussed above, Perry shuts down the energy device to purge the stack by disconnecting the electrical load and closing off the hydrogen gas feed from the external supply. There is no disclosure or suggestion in Perry of a purge assembly adapted to purge an anode with hydrogen gas from the external supply. As discussed above, the purge assembly recited in amended claim 1 allows the fuel cell system to continue to produce energy while purging the anode and purges the anode without interrupting the flow of hydrogen gas from the supply. Applicant respectfully submits that Perry fails to disclose such a purge assembly and requests reconsideration and withdrawal of the rejection of amended claim 1. Applicant further requests withdrawal of the rejection of claims 2 and 5-31, which depend from amended claim 1 and incorporate the elements recited therein.

With respect to amended claim 35, Applicant submits that Perry also fails to disclose, teach, or suggest the purge assembly recited therein. Specifically, Perry fails to disclose at least "a purge assembly adapted to selectively purge ... the anode chamber with a flow containing at least a portion of the stream containing hydrogen gas from the source." As discussed in relation to amended claim 1, Perry shuts off the flow of hydrogen from the external supply to purge the fuel cell. Accordingly, the energy device of Perry fails to anticipate the fuel cell system of amended claim 35. Applicant requests that the rejection of amended claim 35 be reconsidered and withdrawn along with the rejection of claims 36-39 and 43, which depend from amended claim 35.

Rejections Under 35 U.S.C. § 103

Original claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being obvious over either Meltser or Perry. Applicant respectfully traverses and requests

reconsideration of the rejection in view of amended claims 1 and 35 and the following remarks. Similarly, and for the reasons expressed herein, Applicant submits that Meltser and Perry specifically teach away from the purge assemblies recited in amended claims 1 and 35, and therefore cannot provide the required disclosure or suggestion to reject the amended claims. As discussed above, Meltser and Perry both require that the hydrogen flows be interrupted to purge the anode of the fuel cell. Additionally, Meltser and Perry both require the energy production of the fuel cell stack to be discontinued during the purging of the anode. As discussed above, the purge assembly of amended claim 1, from which claims 3 and 4 depend, is adapted to purge the anode with at least a portion of the hydrogen gas flow from the source. Applicant respectfully submits that there is nothing in either Meltser or Perry that would suggest the modification of their respective purge assemblies. Furthermore, modification of the systems of Meltser or Perry to make this modification would be contrary to the specific and clear disclosure of the references. Accordingly, Applicant requests withdrawal of the rejections of claims 3 and 4 and submits that amended claims 1 and 35 are also not obvious over these references.

Original claims 32-34 and 40-42 stand rejected as being unpatentable over Meltser or Perry in view of Matsumura et al. (US 5,993,984) (hereinafter, Matsumura). As expressed in the Office action, the Examiner correctly recognizes that Meltser and Perry fail to disclose or suggest the various sources of hydrogen gas recited in the rejected claims. However, the claims stand rejected based on a proposed modification of these references in view of Matsumura. Applicant respectfully traverses the rejection. However, claims 32-34 depend from amended claim 1, and claims 40-42 depend from

amended claim 35. Amended claims 1 and 35 have been discussed in relation to Meltser and Perry above. Applicant respectfully submits that, as discussed above, Meltser and Perry fail to disclose, teach, or suggest the purge assembly recited in amended claims 1 and 35. Matsumura fails to add to the disclosure of Meltser or Perry to suggest the purge assembly of amended claims 1 or 35. Therefore, Applicant submits that claims 32-34 and 40-42 should be allowed when amended claims 1 and 35 are allowed, thereby rendering the rejections moot.

In light of the above amendments and remarks, it is requested that the Examiner reconsider and withdraw the rejections under 35 U.S.C. §§102 and 103. Early and favorable action in the case is respectfully requested.


Applicant has made an earnest effort to place the application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, Applicant respectfully requests reconsideration of this application, entry of the amendments presented herein, and allowance of claims 1-47. If the Examiner has any questions, or if a telephonic interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, to: Mail Stop AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on July 16, 2004.


Tamara Daw

Respectfully submitted,
KOLISCH HARTWELL, P.C.


David S. D'Ascenzo
Registration No. 39,952
Customer No. 23581
Attorney for Applicant/Assignee
520 S.W. Yamhill Street, Suite 200
Portland, Oregon 97204
Telephone: (503) 224-6655
Facsimile: (503) 295-6679